2000

OBSERVATIONS & RECOMMENDATIONS

After reviewing data collected from **MAY POND** the program coordinators recommend the following actions.

FIGURE INTERPRETATION

- Figure 1: These graphs illustrate concentrations of chlorophyll-a in the water column. Algae are microscopic plants that are a natural part of lake ecosystems. Algae contain chlorophyll-a, a pigment necessary for photosynthesis. A measure of chlorophyll-a can indicate the abundance of algae in a lake. The historical data (the bottom graph) show a *very stable* in-lake chlorophyll-a trend. Algal abundance remains below the New Hampshire mean, and golden-brown algae are dominant in the lake. While algae are present in all lakes, an excess amount of any type is not welcomed. Concentrations can increase when there are external and internal sources of phosphorus, which is the nutrient algae depend upon for growth. It's important to continue the education process and keep residents aware of the sources of phosphorus and how it influences lake quality.

- Figure 2: Water clarity is measured by using a Secchi disk. Clarity, or transparency, can be influenced by such things as algae, sediments from erosion, and natural colors of the water. The graphs on this page show historical and current year data. The lower graph shows a *slight declining* trend in lake transparency. Transparency decreased this season and was particularly low in July. The increased tributary flow due to the rain likely decreased the clarity by washing excess nutrients into the lake. Lake transparency recovered in August and was back to normal values for May Pond. The average transparency was below the New Hampshire mean for the first time since 1996. The 2000 sampling season was considered to be wet and, therefore, average transparency readings are expected to be slightly lower than last year's readings. Higher amounts of rainfall usually cause more eroding of sediments into the lake and streams, thus decreasing clarity.

- Figure 3: These figures show the amounts of phosphorus in the epilimnion (the upper layer in the lake) and the hypolimnion (the lower layer); the inset graphs show current year data. Phosphorus is the limiting nutrient for plants and algae in New Hampshire waters.

Too much phosphorus in a lake can lead to increases in plant growth over time. These graphs show a *stable* trend for in-lake phosphorus levels. Phosphorus concentrations were uniform this season for the epilimnion and hypolimnion. Mean values fell below the New Hampshire median, which we hope to see continue. One of the most important approaches to reducing phosphorus levels is educating the public. Humans introduce phosphorus to lakes by several means: fertilizing lawns, septic system failures, and detergents containing phosphates are just a few. Keeping the public aware of ways to reduce the input of phosphorus to lakes means less productivity in the lake. Contact the VLAP coordinator for tips on educating your lake residents or for ideas on testing your watershed for phosphorus inputs.

OTHER COMMENTS

- Phosphorus concentrations (Table 8) and conductivity (Table 6) remain very low at all stations in May Pond. This is a positive sign with the increased rains and corresponding tributary flow experienced this season. Phosphorus and conductivity increases often indicate the influence of human activities on surface waters. Septic system leachate, agricultural runoff, iron deposits, and road runoff can all influence conductivity.

- Dissolved oxygen was high at all depths of the pond (Table 9). May Pond is a shallow body of water that is likely affected by wind and wave action. Shallower waters tend to mix continuously, thereby keeping oxygen levels high throughout the water column.

NOTES

- Monitor's Note (7/12/00): Very wet spring. High, fast tributary flow.

- Monitor's Note (8/23/00): Loons with chick.

USEFUL RESOURCES

Camp Road Maintenance Manual: A Guide for Landowners. Kennebec Soil and Water Conservation District, 1992. (207) 287-3901

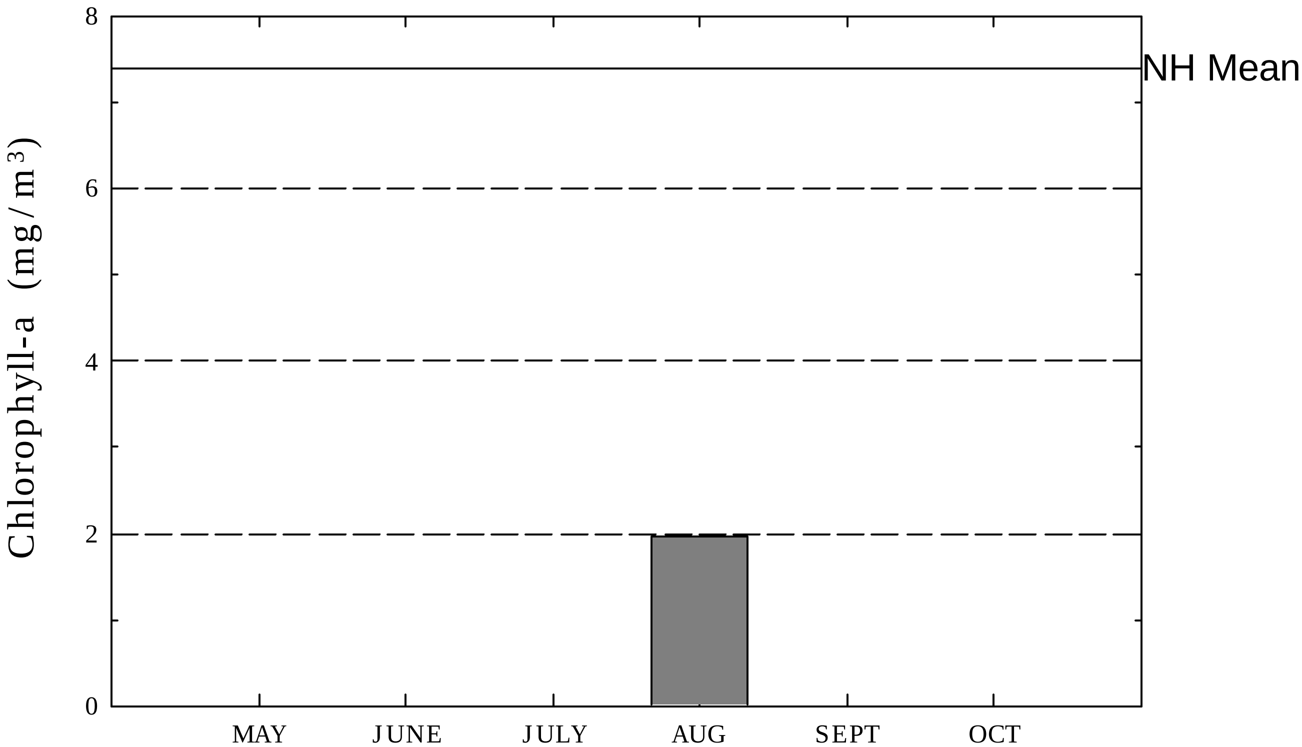
Vegetated Phosphorus Buffer Strips, NH Lakes Association pamphlet, (603) 226-0299 or www.nhlakes.org

Answers to Common Lake Questions, NHDES-WSPCD-92-12, NHDES Booklet, (603) 271-3503.

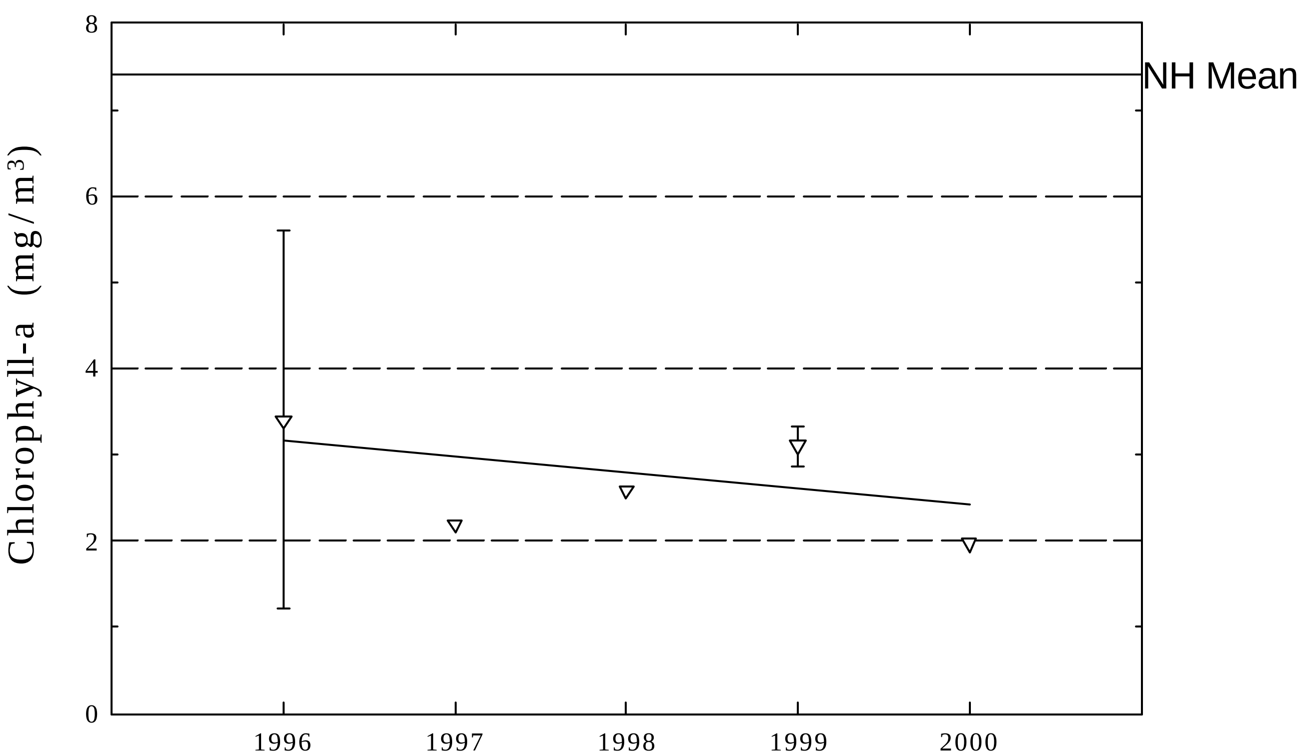
Through the Looking Glass: A Field Guide to Aquatic Plants. North American Lake Management Society, 1988. (608) 233-2836 or www.nalms.org

May Pond

Figure 1. Monthly and Historical Chlorophyll-a Results



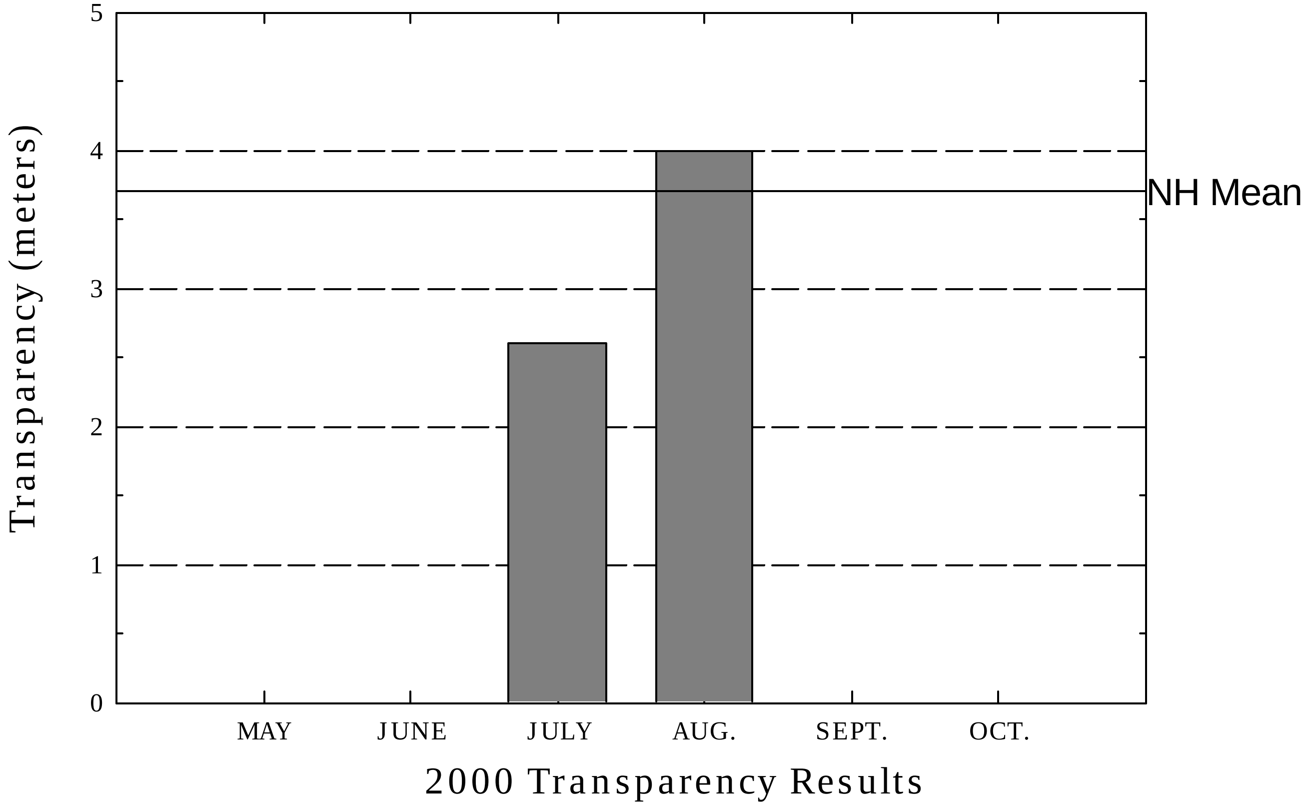
2000 Chlorophyll-a Results

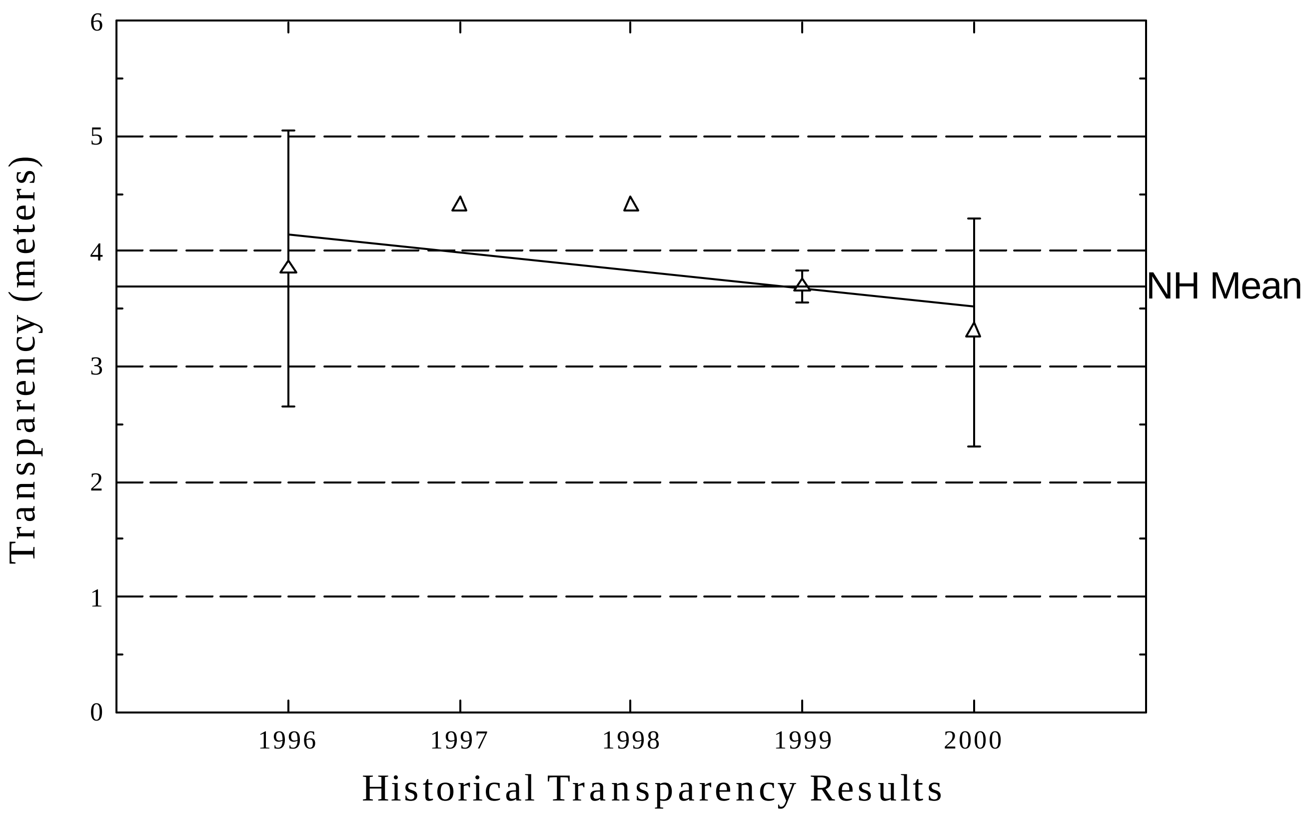


Historical Chlorophyll-a Results

May Pond

Figure 2. Monthly and Historical Transparency Results





May Pond

Figure 3. Monthly and Historical Total Phosphorus Data.

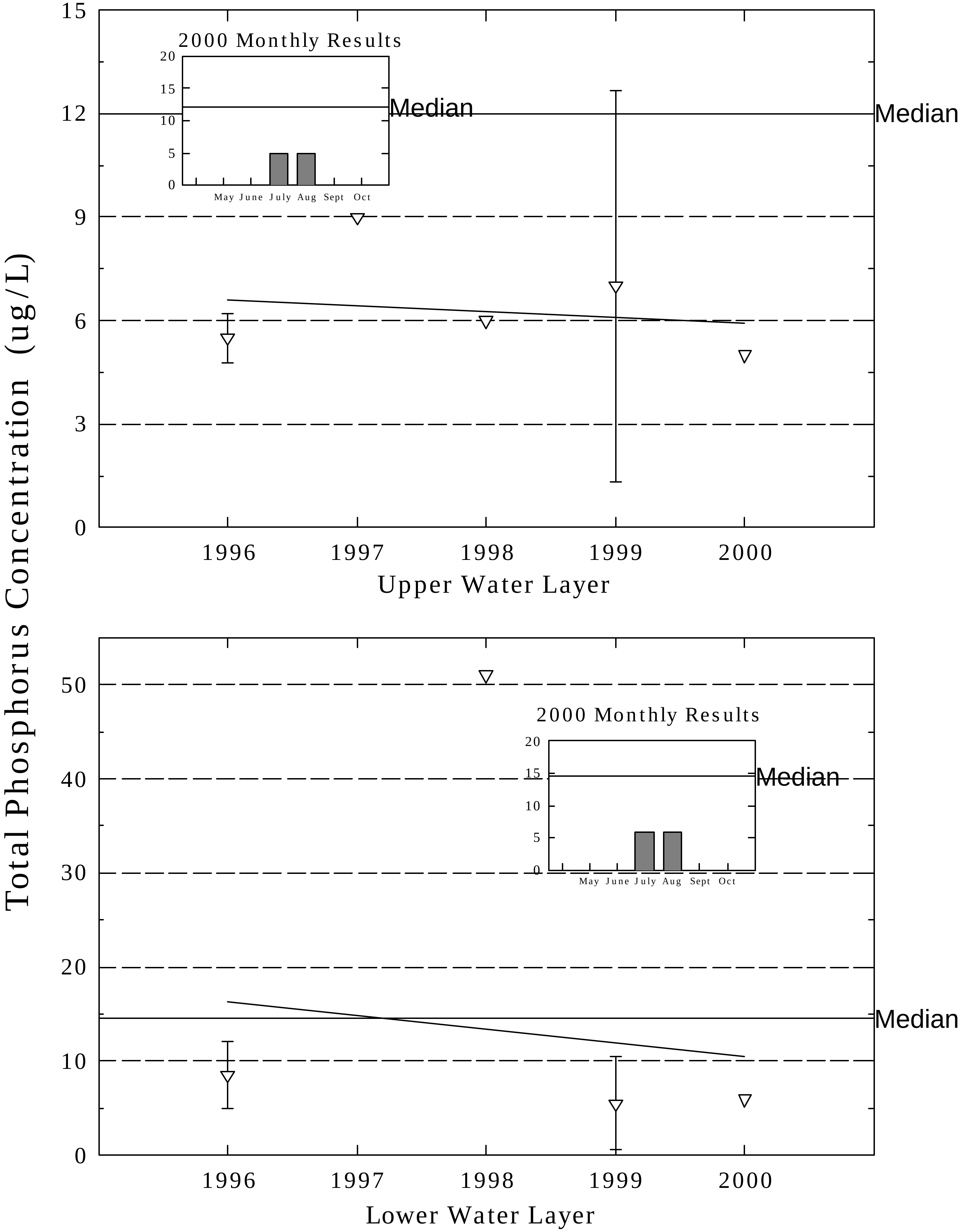


Table 1.

MAY POND

WASHINGTON

Chlorophyll-a results (mg/m^3) for current year and historical sampling periods.

Year	Minimum	Maximum	Mean
1996	1.85	4.95	3.40
1997	2.20	2.20	2.20
1998	2.58	2.58	2.58
1999	2.94	3.27	3.10
2000	1.97	1.97	1.97

Table 2.

MAY POND

WASHINGTON

Phytoplankton species and relative percent abundance.

Summary for current and historical sampling seasons.

Date of Sample	Species Observed	Relative % Abundance
07 / 03 / 1996	SYNURA	59
	DINOBRYON	15
	MALLOMONAS	15
07 / 08 / 1997	DINOBRYON	36
	SYNURA	28
	ANABAENA	13
08 / 23 / 2000	CHRYSOSPHAERELLA	91
	UROGLENOPSIS	8
	SYNURA	1

Table 3.

MAY POND

WASHINGTON

Summary of current and historical Secchi Disk transparency results (in meters).

Year	Minimum	Maximum	Mean
1996	3.0	4.7	3.8
1997	4.4	4.4	4.4
1998	4.4	4.4	4.4
1999	3.6	3.8	3.7
2000	2.6	4.0	3.3

Table 4.

MAY POND
WASHINGTON

pH summary for current and historical sampling seasons.
Values in units, listed by station and year.

Station	Year	Minimum	Maximum	Mean
BUTTERFIELD OUTLET				
	1997	5.81	5.81	5.81
	2000	5.92	5.92	5.92
EPILIMNION				
	1996	5.22	5.73	5.40
	1997	5.47	5.47	5.47
	1998	5.56	5.56	5.56
	1999	6.09	6.42	6.22
	2000	5.85	6.26	6.01
HYPOLIMNION				
	1996	5.24	5.26	5.25
	1998	5.49	5.49	5.49
	1999	5.89	6.00	5.94
	2000	5.73	5.78	5.75
METALIMNION				
	1999	5.98	5.98	5.98
	2000	5.61	5.61	5.61
MILL POND INLET				
	1996	5.35	5.35	5.35
	1997	5.17	5.17	5.17
	1998	5.58	5.58	5.58
	1999	5.48	5.70	5.58
	2000	5.83	5.83	5.83

Table 4.

MAY POND
WASHINGTON

pH summary for current and historical sampling seasons.
Values in units, listed by station and year.

Station	Year	Minimum	Maximum	Mean
VICKERY PD INLET				
	1997	6.12	6.12	6.12

Table 5.

MAY POND

WASHINGTON

Summary of current and historical Acid Neutralizing Capacity.
Values expressed in mg/L as CaCO .

Epilimnetic Values

Year	Minimum	Maximum	Mean
1996	0.50	0.80	0.65
1997	0.40	0.40	0.40
1998	0.60	0.60	0.60
1999	0.90	1.20	1.05
2000	0.80	0.90	0.85

Table 6.

MAY POND
WASHINGTON

Specific conductance results from current and historic sampling seasons. Results in uMhos/cm.

Station	Year	Minimum	Maximum	Mean
BUTTERFIELD OUTLET				
	1997	28.0	28.0	28.0
	2000	22.7	22.7	22.7
EPILIMNION				
	1996	16.5	16.9	16.7
	1997	14.6	14.6	14.6
	1998	14.3	14.3	14.3
	1999	16.3	16.3	16.3
	2000	13.8	15.2	14.5
HYPOLIMNION				
	1996	16.8	17.1	16.9
	1998	15.4	15.4	15.4
	1999	16.2	16.4	16.3
	2000	13.7	15.2	14.5
METALIMNION				
	1999	16.4	16.4	16.4
	2000	15.2	15.2	15.2
MILL POND INLET				
	1996	17.4	17.4	17.4
	1997	16.0	16.0	16.0
	1998	14.8	14.8	14.8
	1999	17.9	17.9	17.9
	2000	14.0	14.0	14.0
VICKERY PD INLET				
	1997	36.6	36.6	36.6

Table 8.

MAY POND
WASHINGTON

Summary historical and current sampling season Total Phosphorus data. Results in ug/L.

Station	Year	Minimum	Maximum	Mean
BUTTERFIELD OUTLET				
	1997	13	13	13
	2000	5	5	5
EPILIMNION				
	1996	5	6	5
	1997	9	9	9
	1998	6	6	6
	1999	3	11	7
	2000	5	5	5
HYPOLIMNION				
	1996	6	11	8
	1998	51	51	51
	1999	2	9	5
	2000	6	6	6
METALIMNION				
	1999	5	5	5
	2000	6	6	6
MILL POND INLET				
	1996	2	2	2
	1997	13	13	13
	1998	10	10	10
	1999	9	13	11
	2000	7	7	7
VICKERY PD INLET				
	1997	9	9	9

Table 9.

MAY POND
WASHINGTON

Current year dissolved oxygen and temperature data.

Depth (meters)	Temperature (celsius)	Dissolved Oxygen (mg/L)	Saturation (%)
August 23, 2000			
0.1	19.8	8.9	97.3
1.0	19.7	8.8	96.2
2.0	19.5	8.9	96.8
3.0	19.3	8.9	96.1
4.0	19.0	8.7	93.3
5.0	18.8	2.6	27.0

Table 10.

MAY POND

WASHINGTON

Historic Hypolimnetic dissolved oxygen and temperature data.

Date	Depth (meters)	Temperature (celsius)	Dissolved Oxygen (mg/L)	Saturation (%)
July 3, 1996	7.0	13.8	2.5	23.0
July 8, 1997	5.0	21.0	7.6	84.0
August 12, 1999	6.0	20.1	7.3	80.7
August 23, 2000	5.0	18.8	2.6	27.0

Table 11.

MAY POND
WASHINGTON

Summary of current year and historic turbidity sampling.
Results in NTU's.

Station	Year	Minimum	Maximum	Mean
BUTTERFIELD OUTLET				
	1997	0.5	0.5	0.5
	2000	0.2	0.2	0.2
EPILIMNION				
	1997	0.3	0.3	0.3
	1998	0.3	0.3	0.3
	1999	0.4	0.4	0.4
	2000	0.2	0.4	0.3
HYPOLIMNION				
	1998	4.1	4.1	4.1
	1999	0.7	0.7	0.7
	2000	0.3	0.4	0.4
METALIMNION				
	1999	0.4	0.4	0.4
	2000	0.5	0.5	0.5
MILL POND INLET				
	1997	0.2	0.2	0.2
	1998	0.2	0.2	0.2
	1999	0.8	0.8	0.8
	2000	0.2	0.2	0.2
VICKERY PD INLET				
	1997	0.3	0.3	0.3